

Is Your Supply Chain Losing You Millions?

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Oil & gas companies neglect supply chain management (SCM) at great peril and cost. Today, forward-thinking companies are using SCM to create competitive advantage. Amazon, Dell, and Uber were founded on SCM innovation.

We will use traditional manufacturing examples to illustrate the concepts as the oil & gas examples are less familiar to our broader readership.

Lack of transparency in demand and supply across the supply chain can create a “bull whip” effect, where participants try to out-guess the demand forecast or the supply capabilities of other participants, ultimately resulting in poor service levels, high costs or excessive inventory levels.

Case Examples:

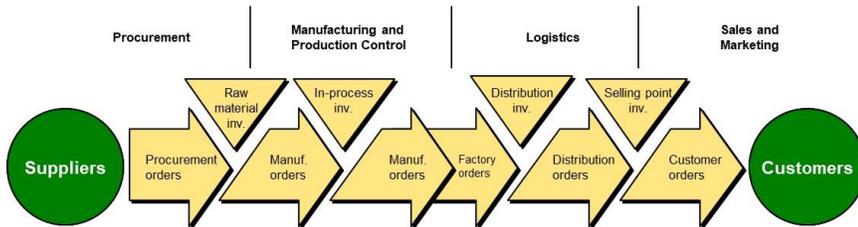
The value of good supply chain design can best be shown from cases of poor performance.

Pressure Pumper: The organization had a Frac War Room to manage the supply of proppant (sand) and chemicals to each wellsite. The supply plan was changing daily, and sometimes even hourly, as customers called in with new demands leading to last mile logistical challenges. An analysis of the week-to-week differences showed that sand requirements were changing over 30% from one

week to the next, while chemicals were changing over 50%. In many cases, the entire well completion plan was changed three to four days before the job began. The company found itself constantly scrambling to find the right requirements and to offload materials that were no longer needed. The cost was estimated in the tens of millions of dollars. By

learning from forecast error analysis and encouraging greater customer transparency and earlier planning, the company saved over \$10 million.

Figure 1: The Supply Chain is Cross-functional



Why is SCM neglected? Most companies are organized by functions such as Sales, Manufacturing and Procurement (Figure 1) – or Drilling, Completions and Production. However, products and service flow horizontally across the organization along the supply chain. Effective supply chain management requires functional organizations to work together to make trade-offs in order to achieve superior customer service and company profitability (Figure 2).

Too frequently, one function dominates the organization, driving a successful Drilling, Completion, Sales, Manufacturing or Finance strategy at the expense of overall business success. Other times, companies miss the contribution of participants in the extended enterprise, such as an outbound trucking company or a key supplier of parts or materials.

Figure 2: Impact of Purely Functional Optimization

		Product Cost	Inventory Investment	Customer Service
Desired Supply Chain Results		↓	↓	↑
Procurement & Manufacturing	Long production runs (designed for mass production not flexibility)	↓	↑	↓
Logistics	Low inventory investment	↑	↓	↓
Sales & Marketing	Short lead times, high reliability	↑	↑	↑
Finance	Low inventory, long payables, quick receipts		↓	↓



Oil Field Tool Company: This company was experiencing a high level of overtime and last-minute rushes even for orders that had been placed with adequate leadtimes. Manufacturing was focused on equipment utilization and wanted a sufficient backlog of work behind all key equipment. Production control had been releasing one month of orders, leaving machine operators free to choose the work they preferred to get the highest machine utilization. Unfortunately, this meant that not all parts on the bill of materials were available when assembly was scheduled, which resulted in overtime and expediting. By reducing the production order release to one-week, the correct parts were ready for assembly and overtime was reduced by \$1 million annually, not to mention hot shot costs.

Wellhead Supplier: This leading supplier of wellheads had developed a strong supply base in China. However, over time they found they had to scramble more and more to meet deliveries, and were ultimately airfreighting wellheads from China at a cost of \$1 million per month. Investigation of the issue revealed that the procurement organization had been using rig count to forecast needs; however, rigs had become so much more productive that the number of wells drilled was far exceeding the five-year average. Secondly, Sales had started offering 90-day delivery terms when the entire order process took 120 days. By updating the forecasting practices and addressing delivery lead times, the company was able to eliminate urgent orders out of China and save \$1 million per month.

Resins Exports: A study was conducted to assess the competitiveness of exporting resins from the Gulf Coast. One issue become perfectly clear, the lack of trucks. Or so we thought. It turned out that most trucks were sitting either at the packer or the port. Trucks were turning three times a day versus a potential for five to six times. By working with participants along the supply chain, trucking productivity could be improved, thus resulting in higher competitiveness for the Gulf Coast.

Houston Harbor Congestion: Today, vessels and barges are waiting to be called to dock for days in the Houston area. Chemicals vessels that should take seven days to drop off cargos and pick up return loads are taking 12-15 days to get in and out of Houston. Similar challenges are facing other shippers. Most vessels give only a short notice before arriving in port to avoid responsibility for navigational and weather delays. We estimate that these poor supply chain practices are costing the industry over \$1 billion in additional costs and simultaneously eroding the Greater Houston Area's attractiveness to the oil, gas and chemicals industry. However, it doesn't have to be that way. Other ports like Rotterdam and Singapore effectively coordinate vessel turns and achieve superior performance.

The Solution:

Effective SCM is both easy and challenging in the oil, gas and chemicals industry.

- Analyze the end-to-end supply chain as though you owned all parts to identify areas of waste and inefficiency.
- Identify the organizational silos, vendor incentives and key performance indicators that are misaligning incentives and ultimately causing inefficiencies.
- Restructure the organizations, commercial terms and KPIs to align the entire supply chain to maximize delivered value.

The challenge comes in addressing traditional organizational roles. For example,

- Aligning Drilling, Completions, and Production to focus on overall value creation
- Ensuring the service companies recognize the cost of downtime and demurrage.

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We didn't say it would be easy. However, the economic benefits are substantial and worth the effort.

Lion & Stutz is dedicated to assisting oil & gas companies to accelerate cash flow generation.

